

SN 09/888,825

Page 2

Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (currently amended) A static attitude measurement device for measuring the static attitude of a head suspension target while reducing measurement errors due to stray spots and internal reflections, the device comprising:

a light source for producing a light beam;

a beam splitter for directing a first portion of the light beam toward a target from which a reflected beam is returned;

~~a collection optic positioned between the beam splitter and the target;~~

a detector for detecting the reflected beam at a predetermined polarization state; and

a polarization component for producing the predetermined polarization state in the reflected beam, the polarization component positioned between the beam splitter and the target.

2. (previously presented) The measurement device of claim 1, wherein the polarization component comprises a quarter-wave plate.

3. (previously presented) The measurement device of claim 2, wherein the beam splitter comprises a first beam splitter and the device further comprises a second beam splitter positioned between the light source and the first beam splitter.

4. (previously presented) The measurement device of claim 3, wherein the second beam splitter comprises a polarizing beam splitter.

SN 09/888,825

Page 3

5. (previously presented) The measurement device of claim 3, wherein the first beam splitter comprises a polarizing beam splitter.

6. (previously presented) The measurement device of claim 3, further comprising a polarizer positioned between the first and second beam splitters.

7. (previously presented) The measurement device of claim 6, further comprising a beam reducer positioned between the first beam splitter and the polarizer.

8. (previously presented) The measurement device of claim 1, further comprising collection optics positioned between the beam splitter and the quarter-wave plate, the collection optics including at least one lens for focusing the first portion of the beam.

9. (previously presented) The measurement device of claim 1, wherein the beam splitter is positioned between the target and the detector.

10. (previously presented) The measurement device of claim 1, wherein the static attitude measurement device also measures Z-height of the target and wherein the device further comprises:

a Z-height detector for detecting a Z-height reflected beam; and

a Z-height directional component for directing a second portion of the light beam toward the target from which the reflected beam from the target is directed toward the Z-height detector.

11. (previously presented) The measurement device of claim 10, further comprising a polarization component positioned between the Z-height directional

SN 09/888,825

Page 4

component and the target for changing the polarization state of the second portion of the light beam prior to encountering the target.

12. (previously presented) The measurement device of claim 1, wherein the light source comprises a polarized laser.

13. (previously presented) The measurement device of claim 1, wherein the detector comprises a polarizer that passes substantially only light in the predetermined polarization state.

14. (currently amended) A method for measuring the static attitude of a head suspension target while reducing measurement errors due to stray spots and internal reflections, the method comprising the steps of:

providing a light beam;

directing the beam onto a target from which a reflected beam is returned;

~~collimating the beam directed onto the target;~~

producing a predetermined polarization state in the reflected beam by passing the beam and the reflected beam through a first polarization component; and

detecting the reflected beam at the predetermined polarization state.

15. (previously presented) The method of claim 14, wherein the step of detecting comprises providing a detector that detects the reflected beam at the predetermined polarization state and providing a polarizer that passes substantially only light in the predetermined polarization state.

SN 09/888,825
Page 5

16. (previously presented) The method of claim 14, wherein the first polarization component comprises a quarter-wave plate through which the beam and reflected beam are passed to produce a predetermined polarization state in the reflected beam that is orthogonally polarized with respect to a polarization state of the beam.

17. (previously presented) The method of claim 14, wherein the step of directing comprises passing the beam through a beam splitter before encountering the target.

18. (previously presented) The method of claim 17, wherein the beam splitter comprises a polarizing beam splitter which passes substantially only light in the predetermined polarization state and reflects substantially all other light.

19. (previously presented) The method of claim 17, further comprising passing the beam through a polarizer positioned before beam splitter to substantially block light at undesired polarization states.

20. (previously presented) The method of claim 14, wherein the method is also for measuring the Z-height of the target, and wherein the method further comprises directing a portion of the beam onto the target from which a reflected Z-height beam is returned and detecting the reflected Z-height beam to determine the Z-height of the target.

21. (previously presented) The method of claim 20, further comprising the step of producing a desired polarization state in the reflected Z-height beam such that any reflected Z-height beam directed toward the detector for the static attitude measurement is not in the predetermined polarization state.

22. (previously presented) The method of claim 21, wherein the step of producing comprises passing the portion of the beam through a second polarization

SN 09/888,825
Page 6

component before the portion of the beam encounters the target, such that any portion of the reflected Z-height beam directed toward the detector for the static attitude measurement also passes through the first polarization component producing a polarization state in the reflected Z-height beam that is substantially not the predetermined polarization state.

23. (previously presented) In a static attitude measurement device for measuring the static attitude of a head suspension target, the device including a light source for producing a light beam, first and second beam splitters for directing the light beam toward the target from which a reflected beam is returned, and a detector for detecting light at substantially only a predetermined polarization state with the detector positioned to intercept the reflected beam, the improvement comprising a collection optic positioned between the second beam splitter and the target and a quarter-wave plate positioned between the ~~second beam splitter~~collection optic and the target for producing the predetermined polarization state in the reflected beam.

24. (previously presented) The improvement of claim 23, further comprising a polarizer positioned between the first and second beam splitters for reducing light in an unwanted polarization state from reaching the quarter-wave plate and the target.

25. (currently amended) In a combined static attitude and Z-height measurement device for measuring the static attitude and Z-height of a head suspension target, the device including a light source for producing a light beam, a first beam splitter for producing first and second portions of the light beam, a second beam splitter for directing the first portion of the light beam toward the target from which a static attitude reflected beam is returned, a first detector for detecting light at substantially only a predetermined polarization state with the detector positioned to intercept the static attitude reflected beam, at least one directional component for directing the second portion of the light beam toward the target from which a Z-height reflected beam is returned and a second detector positioned to intercept and detect the Z-height reflected beam, the improvement comprising:

SN 09/888,825
Page 7

a collection optic positioned between the second beam splitter and the target;

a first quarter-wave plate positioned between the second beam splitter and the target for producing the predetermined polarization state in the static attitude reflected beam; and

a second quarter-wave plate positioned before the target for producing a desired polarization state in the second portion of the light beam before it encounters the target.

26. (previously presented) The improvement of claim 25, further comprising a polarizer positioned between the first and second beam splitters for reducing light in an unwanted polarization state from reaching the first quarter-wave plate and the target.

27. (new) The measurement device of claim 1, wherein the collection optic comprises a lens.

28. (new) The measurement device of claim 1, wherein the polarization component is disposed between the collection optic and the target.

29. (new) The measurement device of claim 1, wherein the polarization component is disposed to pass both the beam from the beam splitter to the target and reflected beam from the target to the detector.

30. (new) The measurement device of claim 2, wherein the collection optic comprises a lens.

31. (new) The measurement device of claim 1, wherein the quarter-wave plate is disposed between the collection optic and the target.

SN 09/888,825

Page 8

32. (new) The measurement device of claim 1, wherein the quarter-wave plate is disposed to pass both the beam from the beam splitter to the target and reflected beam from the target to the detector.

33. (new) The method of claim 14, wherein the collimating step comprises placing a collection optic in a path of the beam directed onto the target.

34. (new) The method of claim 33, wherein the collimating step is carried out before the step of producing a predetermined polarization state.